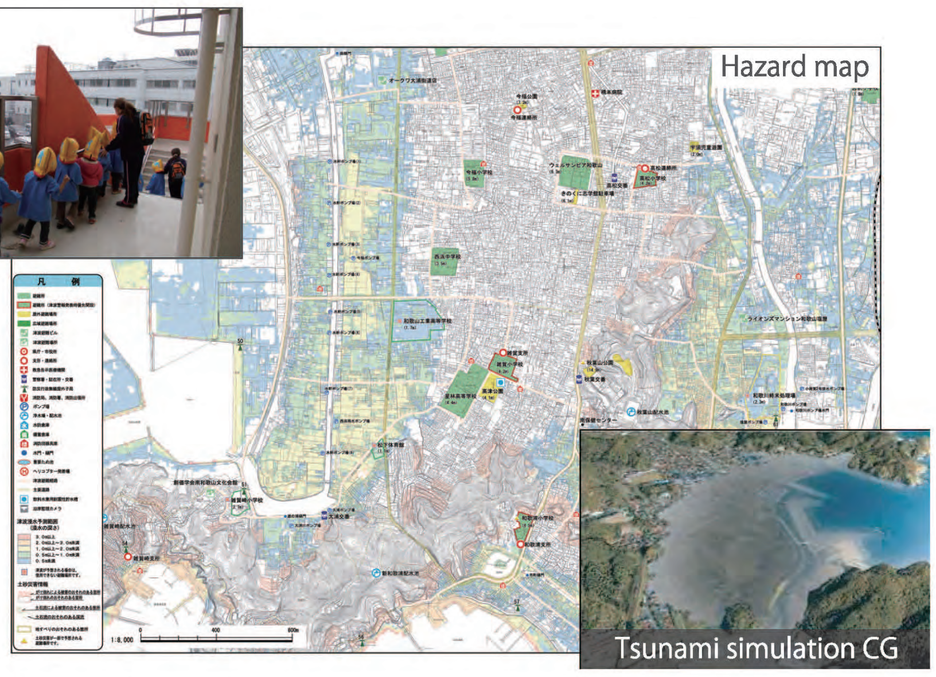
From disaster preparedness to recovery, reconstruction and into the future

Disaster preparedness and risk reduction

We provide data for disaster risk reduction awareness building and education initiatives.



Tsunami simulations using high-resolution topographic models

Tsunami simulation

Input
Tsunami source (original water level)
Tectonic (seabed) movements

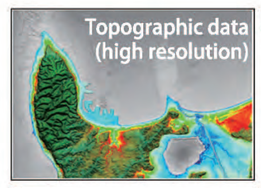
Process

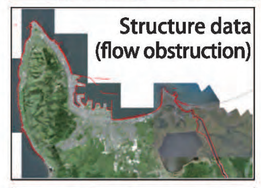
Program	Model
Fluid mechanics Shoaling effect Refraction, etc.	Topography Structures Roughness

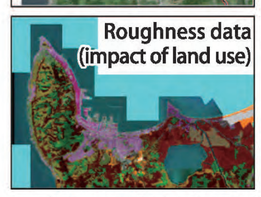
Output
Tsunami level, inundation depth, flow velocity, inundation extent, tsunami arrival time

Damage estimation, hazard map, disaster planning, infrastructure planning, etc.

Topographic model







Made/managed using GIS

Highly-accurate LIDAR data

Satellite imagery, aerial photos

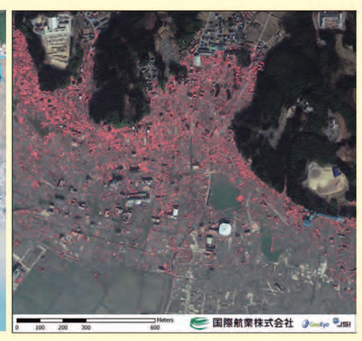
Land register database, etc.

Post-disaster emergency surveys to assess situation and assist recovery

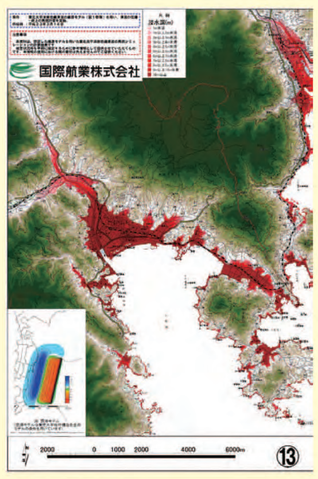
Immediately after the 2011 tsunami in northeast Japan we started making tsunami simulations – literally within hours to provide the first estimates of inundation extents in numerous unreachable coastal towns – damage estimates using aerial photos, inundation maps, etc. Such rapid actions greatly assisted relief and recovery efforts.

Pre-disaster

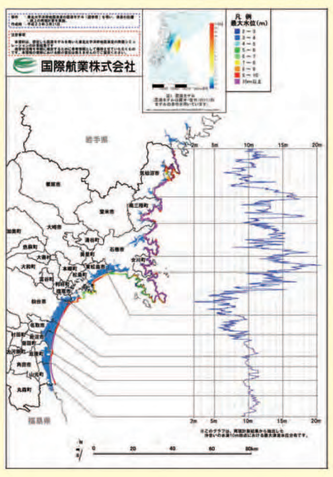
Post-disaster



Debris distribution map



Inundation map



Tsunami height map

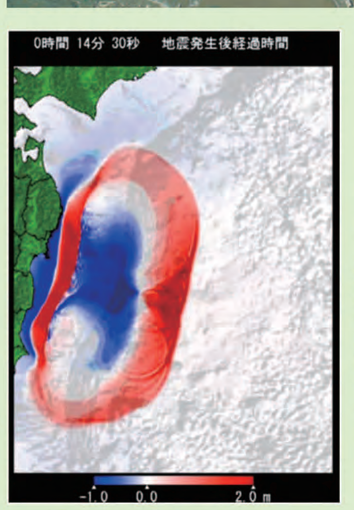
Aerial photo/satellite imagery analysis

▲Satellite image

Vegetation
Inundated area

▲Satellite image

Post-quake aerial photo



Tsunami simulation

Field survey

Reconstruction
Towards Green Communities

Our tsunami reconstruction projects are both sustainable and resilient. We also draft recovery and reconstruction plans for public sector clients.

- Geospatial information technology
- Renewable energy (solar PV)
- Safe, resilient urban design

2010

2011

2012

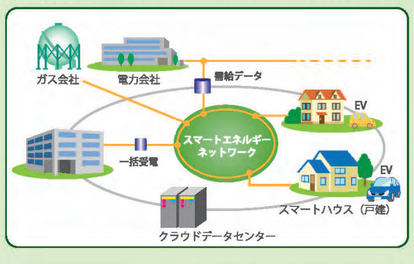
Relocating tsunami victims using mixed-use rezoning – from surveying, design through to daily upkeep and management

Green Community Tagonishi

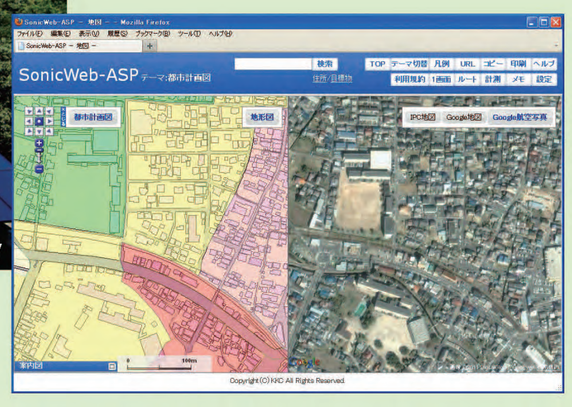
Aerial photo/satellite imagery analysis

Solar photovoltaic (PV) power plants

Miyazaki Solar Way



Energy management



Urban planning/development using geographic information systems (GIS)

KOKUSAI KOGYO CO.,LTD.